

ABSTRACT

A surgical and dental instrument sterilizer is described. Liquid water is rapidly vaporized by microwave heating and steam is generated to attain a steam pressure of approximately 47 psi and a temperature of approximately 135°C in the region of the articles to be sterilized. Micron-size water-droplets are intermittently sprayed onto the articles which are arranged on a tray, from both the top and from underneath thereof so as to thoroughly wet the surfaces. A 30-90 s duration of droplet spray is followed by pulsed microwave irradiation of the top and underneath surfaces for a similar period, as an example; this is followed by a plurality of spray/microwave cycles. Sterilizing conditions in the sterilizer chamber are maintained in the presence of the water spray/microwave flashing cycles since introducing small aliquots of water will not affect the desired sterilizing condition provided by superheated steam augmented by microwave radiation necessary to kill microbes including spores; however arcing from metal instruments when subjected to microwave radiation is substantially reduced.